

SUPPORT FOR THE AMENDMENT

This Amendment cancels Claim 8, amends Claims 1 and 7; and adds new Claim 10. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in canceled Claim 8. Support for Claim 7 is found in Claims 1 and 8. Support for new Claim 10 is found at least in Fig. 7 (peaks corresponding to ZrO_2 (002) and Pt (200), respectively). No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-2, 5-7 and 9-10 will be pending in this application. Claim 1 is independent.

REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides a multilayer thin film including a ferroelectric thin film having improved properties as a result of being epitaxially grown on a primer layer of a perovskite oxide thin film that is grown on a buffer layer on a silicon substrate. See, e.g., specification at page 4, lines 13-16 and 25-30; page 5, lines 18-19.

Claims 1-2 and 5-9 are rejected under 35 U.S.C. § 103(a) over JP 11-312801 ("Noguchi") in view of U.S. Patent No. 6,078,717 ("Nashimoto").

Noguchi discloses a laminated structure of $\text{Si (100) / ZrO}_2 / \text{Y}_2\text{O}_3 / \text{Pt}$.

[0055] On the example 1 Si (100) single crystal substrate, ZrO_2 thin film, YO_3 thin film, and Pt thin film formed the laminating thin film by which the laminating was carried out in this order in the following procedures. English-language machine translation of Noguchi at [0055].

However Noguchi teaches away from Pt directly on ZrO_2 . In particular, Noguchi discloses:

It is because Pt cannot serve as orientation (111) or polycrystal and Pt (100) single orientation film cannot be formed, if preparing a perovskite layer forms Pt thin film directly on ZrO_2 (001) thin film. English-language machine translation of Noguchi at [0004], lines 8-10.

Thus, Noguchi fails to suggest the independent Claim 1 limitations of a "multilayer thin film comprising: a buffer layer formed on said Si substrate, where said buffer layer includes an **oxide thin film consisting of ZrO_2** ; and an **electrically conductive thin film** having (100) or (001) orientation *directly on said oxide thin film*, a perovskite oxide thin film formed on said buffer layer, which is grown epitaxially with respect to said buffer layer, and a ferroelectric thin film having (100) and (001) orientation, which has a different composition than said perovskite oxide thin film and which is epitaxially grown on said perovskite oxide thin film".

Nashimoto fails to remedy the deficiencies of Noguchi. The Final Rejection at page 3 cites Nashimoto for suggesting forming a perovskite epitaxially on the buffer and forming a ferroelectric thin film having (100) and (001) orientation.

Because the cited prior art fails to suggest all the limitation of independent Claim 1, the prior art rejection should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/03)
NFO:CPU/bu

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Corwin P. Umbach, Ph.D.
Registration No. 40,211